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## SUPPLEMENTARY ONLINE MATERIAL FOR

### **Brachiopod fauna from upper Visean, Mississippian, mud mounds in Derbyshire, UK**

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#### **Supplementary Online Material**

**SOM 1.** Additional information on the collected fossil material from the Ricklow mound complex.

**SOM 2.** Table containing all measures from the upper Visean brachiopod fauna collected at in the mud mound complex of Ricklow Quarry (Monyash, Derbyshire; localities RCC-, RCK-) and Wensley Dale (Wensley, Derbyshire; locality WI1).

**SOM 3.** Table containing the complete list of specimens of each species in each assemblage collected in the study site, and in the three recognized facies associations, considered as a whole. The table also contains calculated percentages in specimen number for three substrate-adaptation categories of brachiopods: seminafaunal productides, pedicle-attached rhynchonellides, spiriferides and terebratulides, and pedicle-attached/free living orthotetides, orthides, spiriferides and spiriferinides with adaptations to prevent sinking in a muddy soft substrate.

The table also contains calculated biovolume for assemblages with more than 20 specimens and the three facies associations.

**SOM 4.** Survivorship curve built for *Quasiavonia aculeata*, considering all specimens from all assemblages in unit FA2.

**SOM 5.** Survivorship curve built for *Harttella oakl* considering all specimens from all assemblages in unit FA2.

## SOM 1

Undetermined material: MPUM12001.

Reticulate Productoidea gen. et sp. indet.

*Material.* Nine articulated specimens: RCC1-5; RCC2-33; RCC8-8; RCC10-11; RCC11-8; RCC12-19; RCC60-13, 23a; RCC128-10b. Nine dorsal valves: RCC1-15b; RCC3-13a; RCC10-5; RCC40-5b; RCC45-1; RCC60-8, 15, 19b, 39. Twenty-five ventral valves: RCC1-2, 22b; RCC2-3, 6, 14, 38, 43a, 57, 59b; RCC3-14; RCC12-25; RCC39-3; RCC40-5c; RCC48-21; RCC60-19c, 23b, 24, 26, 30, 49; RCC73-3a, 3b; RCC128-18; RCK15-42b, 57. 96 fragments.

Orthotetidina gen et sp. indet.

*Material.* One unidentified valve: RCC1-56c. Seven fragments: RCC1-17a; RCC3-10; RCC10-8, 34; RCC35A-12; RCC49-27, 49.

Spiriferida gen. et sp. indet.

*Material.* Two articulated specimens: RCC110-3e; RCK15-64. Four ventral valves: RCC2-59a, RCC32-22; RCC85-3c; RCC128-23. Two unidentified valves: RCC32-8F; RCC110-3d. One fragment: RCC1-13e.

Terebratulida gen. et sp. indet.

*Material.* Eleven articulated specimens: RCC1B-30; RCC10-41; RCC42-4b, 15; RCC60-16a, 42; RCC65G-4a, 4b, 4c, 6, 18b. Six fragments: RCC10-7c, 41; RCC43-5; RCC66-1; RCC73-12; W11-9b.

## SOM 2

*Alitaria* aff. *triquetra*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11860 (RCC2-13)	>13.0	13.0	-	-
MPUM11861 (RCC12-2)	18.0	20.0	3.5	-
MPUM11862 (RCC60-2)	17.3	15.4	-	-
MPUM11863 (RCC2-17)	16.0	18.0	-	-
MPUM11863 (RCC11-4)	14.0	17.0	6.0	-
MPUM11863 (RCC32-1c)	>13.0	20.0	-	-
MPUM11863 (RCC32B-6)	>15.0	13.7	-	-

MPUM11863 (RCC60-29)	>13.0	15.5	11.0	-	
MPUM11863 (RCC128-9)	12.5	13.0	9.5	-	
MPUM11864 (RCC2-40)	14.0	19.0	-	-	
MPUM11865 (RCC1-57)	>11.0	13.0	-	-	
MPUM11866 (RCC128-13) dv	11.0	19.2	-	-	
MPUM11867 (RCC2-3) dv	>12.0	15.0	-	-	
MPUM11867 (RCC11-2) dv	>12.0	19.0	-	-	
MPUM11867 (RCC32-8a) dv	>12.0	17.0	-	-	
MPUM11867 (RCC32-29) dv	>10.0	15.0	10.0	-	
MPUM11867 (RCC60-18a) dv	14.0	20.0		-	

*Eomarginiferina trispina*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11869 (WI1-31)	16.0	21.0	7.0	-

*Overtonia fimbriata*

Specimen	length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11870 (RCK15-1b)	10.7	10.1	3.6	-
MPUM11871 (RCK15-53)	10.5	9.5	4.5	-

*Avonia* sp.

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11872 (RCC128-4a)	13.0	12.0	-	-

*Quasiavonia aculeata*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11873 (RCC32-28a)	10.5	12.0	-	-
MPUM11874 (RCC49-28)	15.4	12.6	-	-
MPUM11875 (RCK17-2)	15.0	15.0	-	-
MPUM11876 (RCC1-25)	10.5	12.0	-	-
MPUM11876 (RCC2-12)	11.0	9.0	-	-

MPUM11876 (RCC32-11)	12.5	11.5	-	-
MPUM11876 (RCC41-24)	8.2	9.5	-	-
MPUM11876 (RCC48-13)	8.1	9.0	-	-
MPUM11876 (RCC49-1)	>9.3	11.7	-	-
MPUM11876 (RCC54-1)	10.5	11.0	-	-
MPUM11876 (RCC73-6)	13.5	12.0	-	-
MPUM11876 (RCC73-23g)	10.8	12.3	-	-
MPUM11876 (RCK15-55)	11.5	9.0	-	-
MPUM11877 (RCC49-24) dv	>10.0	11.8	-	-
MPUM11878 (RCK15-51) dv	10.5	12.0	-	-
MPUM11879 (RCC128-4b) dv	12.3	14.5	-	-
MPUM11880 (RCC10-13) dv	10.8	13.6	-	-
MPUM11880 (RCC32-2) dv	>10.5	10.5	-	-
MPUM11880 (RCC32-17) dv	11.3	14.0	-	-
MPUM11880 (RCC42-12a) dv	9.3	12.0	-	-
MPUM11880 (RCC49-10a) dv	>5.0	6.3	-	-
MPUM11880 (RCC49-10b)	10.0	11.0	-	-
MPUM11880 (RCC68-51a) dv	13.0	12.0	-	-
MPUM11880 (RCC68-51b) dv	11.2	11.4	-	-
MPUM11882 (RCC14-8)	>8.9	14.2	-	-
MPUM11882 (RCC68-9)	12.4	12.0	-	-
MPUM11889 (RCC85-2) dv	7.4	9.0	-	-

?*Quasiavonia* sp.

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11883 (RCC3-11)	11.0	12.0	-	-

*Krotovia spinulosa*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11884 (RCC54-17b)	15.1	17.0	-	-
MPUM11885 (RCC68-2)	18.3	>21.0	-	-

MPUM11886 (RCC73-22)	17.0	19.0	-	-
MPUM11887 (RCK15-10)	15.8	19.2	-	-
MPUM11888 (RCK16-1)	7.7	10.5	-	-
MPUM11888 (RCC1-23a)	11.0	>14.0	-	-
MPUM11888 (RCC41-20a)	8.2	9.7	-	-
MPUM11888 (RCC43-8a)	11.0	13.0	-	-
MPUM11888 (RCC73-8)	-	15.9	-	-
MPUM11889 (RCC3-18) dv	12.7	>16.0	-	-
MPUM11891 (RCK15-16) dv	9.1	13.0	-	-
MPUM11892 (RCC15-28) dv	9.8	>15.1	-	-
MPUM11893 (RCC10-24) dv	12.0	14.5	-	-
MPUM11893 (RCC48-26a) dv	10.0	15.0	-	-
MPUM11893 (RCK15-25) dv	11.5	14.0	-	-
MPUM11894 (RCC12-4)	12.0	18.0	-	-
MPUM11894 (RCC49-29)	12.7	-	-	-

*Breileenia radiata*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11895 (RCC65-1)	21.0	23.0	-	-
MPUM11896 (RCC32-13)	20.5	> 15.0	-	-
MPUM11897 (RCC12-18a)	> 12.0	15.0	-	-
MPUM11897 (RCC42-50)	15.0	18.0	-	-
MPUM11897 (RCC68-10)	13.6	19.5	-	-
MPUM11898 (RCC12-1)	>20.0	20.0	-	-
MPUM11899 (RCC12-7) dv	10.5	13.5	-	-
MPUM11900 (RCC12-15) dv	12.0	12.0	-	-
MPUM11902 (RCC12-18b) dv	22.0	22.0	-	-
MPUM11902 (RCC12-18c) dv	11.0	16.0	-	-
MPUM11901 (RCC12-23a) dv	21.0	25.0	-	-
MPUM11901 (RCC12-23b) dv	11.2	12.0	-	-
MPUM11903 (RCC38A-2)	>16.6	21.3	-	-

*Geniculifera keyserlingiana*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11905 (RCC73-28)	9.3	10.2	5.6	-

*Carringtonia cf. carringtoniana*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM1907 (RCC1-11)	12.0	>13.0	-	-
MPUM11906 (RCC2-51)	17.0	>20.0	-	-

*Limbifera sp.*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11890 (RCC54-10b)	10.0	15.0	-	-

*Productus cf. productus*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11919 (RCC41-3a)	>23.0	27.9	-	20.0

*Productus sp.*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11908 (RCC1-61b)	>19.0	18.0	-	12.0
MPUM11909 (RCC60-6) dv	>14.0	19.0	-	11.0

*Eomarginifera cf. laqueata*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11910 (RCC32-26)	13.5	16.0	-	-
MPUM11911 (WI1-41)	11.5	15.7	-	-
MPUM11912 (RCC128-16)	11.7	14.7	-	-
MPUM11913 (WI1-5)	11.0	13.5	-	-
MPUM11914 (RCC60-35) dv	>9.0	12.0	-	-
MPUM11915 (RCC300-13) dv	>10.0	12.2	-	-

MPUM11916 (RCC54-12) dv >8.0 12.0 - -

*Antiquatonia hindi*

Specimen Length (mm)	Length (mm)	Width (mm)	Thickness (corpus cavity; mm)		Visceral disc
MPUM11917 (RCC13-2)	>22.0	36.0	-	22.0	
MPUM11918 (RCC50-1)	>23.0	35.0	-	16.0	
MPUM11920 (RCC123-1)	>26.0	36.0	-	17.0	
MPUM11921 (RCK15-7)	22.8	>14.8	8.4	22.0	
MPUM11922 (WI1-19)	31.8	39.3	12.0	24.5	
MPUM11923 (WI1-25)	>27.0	38.0	15.0	24.5	
MPUM11924 (RCC2-48)	-	45.0	-	-	
MPUM11924 (RCC60-21)	23.0	34.0	13.0	21.0	
MPUM11924 (RCC65TOP-1)	>18.0	>27.5	-	>12.0	
MPUM11924 (RCC73-20)	26.0	>25.0	-	21.0	
MPUM11924 (RCC73-24)	26.0	34.0	6.5	19.0	
MPUM11924 (RCC110-3b)	>35.0	37.5	-	21.0	
MPUM11924 (RCK15-35b)	-	>36.0	-	-	
MPUM11925 (RCC32-6)	>27.0	43.0	-	24.0	
MPUM11927 (RCC2-29)	-	35.7	-	-	
MPUM11927 (RCC11-1)	-	26.0	8.0	-	
MPUM11927 (RCC128-1)	30.0	39.0	-	-	
MPUM11928 (RCC3-4) dv	>28.0	35.5	-	20.0	
MPUM11928 (RCC40-5a) dv		21.4	23.0	-	18.0
MPUM11928 (RCC42-23) dv	>25.0	40.0	-	-	
MPUM11928 (RCC60-19a) dv	>20.0	31.5	-	19.0	
MPUM11928 (RCC60-25) dv	-	40.0	-	-	
MPUM11928 (RCC65G-8b) dv		15.0	25.0	-	15.0
MPUM11928 (RCC123-2) dv	>21.9	32.0	-	-	
MPUM11929 (RCC1-43) dv	>25.0	36.0	-	-	
MPUM11929 (RCC32-15)	-	40.0	-	-	

MPUM11929 (RCC42-1b) - 27.0 - -

*Antiquatonia aff. hindi*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11930 (RCC12-8)	>22.0	28.0	-	18.0
MPUM11931 (RCC13-3a)	>20.0	33.0	-	16.0
MPUM11932 (RCC32-19)	>23.0	25.0	-	19.0
MPUM11933 (RCC32-12a)	22.0	18.0	-	16.0
MPUM11934 (RCC39-19)	>18.0	27.0	-	15.0
MPUM11935 (RCC8-5a) dv	>22.0	28.0	-	18.0

*Antiquatonia inschlupta*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11938 (RCC1B-9)	30.0	30.0	-	14.0
MPUM11939 (RCC3-15a)	>13.0	19.0	-	-
MPUM11940 (RCC42-26)	25.0	30.0	-	17.0
MPUM11941 (RCC110-1b)	30.5	28.5	-	17.0
MPUM11942 (RCC1-9)	-	26.5	-	-
MPUM11942 (RCC1-31)	>16.0	22.0	-	12.5
MPUM11942 (RCC2-1)	>20.0	25.0	-	15.0
MPUM11942 (RCC2-4)	>22.2	25.0	-	-
MPUM11942 (RCC2-54)	>21.0	27.0	-	16.0
MPUM11942 (RCC3-13b)	-	>33.0	-	-
MPUM11942 (RCC11-5)	>15.0	26.0	-	-
MPUM11942 (RCC12-12)	>22	26.0	-	-
MPUM11942 (RCC41-4)	21.5	29.5	-	14.5
MPUM11942 (RCC60-3)	>16.0	>18.0	-	13.0
MPUM11942 (RCK15-56)	>22.0	30.0	-	-
MPUM11943 (RCC1B-39)	>21.0	24.0	-	13.0
MPUM11944 (RCC2-25)	>20.0	23.0	-	15.0
MPUM11945 (RCC1-54)	>20.5	32.0	-	13.5



MPUM11945 (RCC2-53)	>19.0	>22.0	-	-
MPUM11945 (RCC73-29a)	>15.5	20.0	-	-
MPUM11945 (RCC128-19)	>32.0	35.0	-	>14.0
MPUM11947 (RCC128-2) dv	>15.3	28.5	-	-
MPUM11948 (RCC1-26) dv	>16.0	24.5	-	13.0
MPUM11948 (RCC3-2b) dv	19.0	23.0	-	13.0
MPUM11948 (RCC3-5) dv	>18.0	26.0	-	12.0
MPUM11948 (RCC3-15b) dv	>22.0	25.0	-	16.0
MPUM11948 (RCC10-19) dv	>14.0	20.0	-	12.0
MPUM11948 (RCC32-9) dv	>17.0	28.5	-	12.0
MPUM11948 (RCC43-1a) dv	19.0	26.5	-	13.0
MPUM11948 (RCC60-1a) dv	>16.0	23.0	-	16.0
MPUM11948 (RCC60-11) dv	>15.0	23.0	-	-
MPUM11948 (RCC65TOP-40)	>18.0	32.0	-	>13.0
MPUM11948 (RCC110-1c) dv	15.0	21.0	-	15.0

*Dictyoclostus pinguis*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11950 (RCC54-11)	>50.0	-	-	>50.0
MPUM11951 (RCK15-63a) dv	>47.0	67.0	-	43.0

*Pugilis cf. kilbridensis*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11954 (RCC2-47)	>34.0	>33.0	-	-
MPUM11955 (RCC54-4)	>35.0	>32.5	-	20.0
MPUM11956 (RCC128-3) dv	22.0	30.5	-	19.0

*Pugilis cf. scotica*

Specimen	Length (mm)	Width (mm)	Thickness (mm)	Visceral disc Length (mm)
MPUM11958 (RCC2-41)	>28.0	38.5	-	20.0

*Buxtonia scabricula*

Specimen	Length (mm)	Width (mm)	Thickness (corpus cavity; mm)		Visceral disc Length (mm)
MPUM11959 (RCC1B-13)	>23.0	26.0	-	-	
MPUM11960 (RCC35A-11)	31.5	36.0	17.5	-	
MPUM11961 (WI1-14)	39.0	45.0	-	-	
MPUM11962 (WI1-38)	36.5	35.0	16.6	-	
MPUM11963 (WI1-40)	>34.0	42.7	18.0	-	
MPUM11964 (WI1-24)	-	-	-	-	
MPUM11964 (WI1-34)	>20.0	>32.0	-	-	

*Buxtonia* sp.

Specimen	Length (mm)	Width (mm)	Thickness (mm)		Visceral disc Length (mm)
MPUM11968 (RCC8-2a)	29.0	38.0	-	-	
MPUM11969 (WI1-2)	>30.0	>32.0	-	-	

*Buxtoniini* gen. et sp. indet.

Specimen	Length (mm)	Width (mm)	Thickness (mm)		Visceral disc Length (mm)
RCK15B-1a (dv)	>45.0	>60.0	-	38.0	

Reticulate Productoidea gen. et sp. indet.

Specimen	Length (mm)	Width (mm)	Thickness (mm)		Visceral disc Length
MPUM12001 (RCC1-23)	-	20.0	-	-	
MPUM12001 (RCC2-57)	12.4	15.0	-	-	
MPUM12001 (RCC3-3)	22.0	25.0	-	-	
MPUM12001 (RCC8-11) dv	13.6	22.3	-	-	
MPUM12001 (RCC40-5b) dv	20.0	25.0	-	-	
MPUM12001 (RCC42-27b)	25.0	30.0	-	-	
MPUM12001 (RCC45-1) dv	18.0	30.0	-	-	
MPUM12001 (RCC60-5c)	-	30.0	-	-	
MPUM12001 (RCC60-13)	>21.0	22.0	-	-	

MPUM12001 (RCC60-15) dv	17.0	29.0	-	-
MPUM12001 (RCC60-17)	23.0	25.0	-	-
MPUM12001 (RCC60-39) dv	15.0	27.0	-	-
MPUM12001 (RCC60-24)	-	26.0	-	-
MPUM12001 (RCC68-8) dv >21.0	27.5	-	-	-
MPUM12001 (RCK15-42) dv	20.0	22.0	-	-

*Echinoconchus punctatus*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM11974 (RCC72-1)	25.0	30.0	-
MPUM11975 (RCK15-21)	15.1	19.0	-
MPUM11976 (RCK15-47)	>20.0	48.0	-
MPUM11977 (WI1-28)	43.0	49.0	16.5
MPUM11978 (RCC1B-1)	18.0	22.0	-
MPUM11979 (WI1-22)	35.0	35.5	14.5
MPUM11979 (WI1-35)	>21.0	>25.0	7.0
MPUM11980 (RCC54-7)	>40.0	51.0	-
MPUM11981 (RCC1-24)	40.0	45.0	-
MPUM11981 (RCC48-12)	16.0	20.0	-
MPUM11981 (RCC85-1a) dv	>33.0	46.0	-
MPUM11982 (WI1-7)	41.7	50.0	-
MPUM11983 (RCC1B-18) dv	33.0	44.0	-
MPUM11984 (RCC1B-15) dv	32.0	40.0	-
MPUM11984 (RCC68-1) dv	42.0	59.5	-

*Pustula cf. pustulosa*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM11987 (RCC41-1)	18.5	21.0	-
MPUM11988 (RCC 128-7)	9.5	11.0	4.3
MPUM11989 (RCC128-17a) dv	-	>38.0	-

*Fluctuaria undata*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM11926 (RCC300-14)	13.7	14.2	-

*Linoprotonia* sp.

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM11991 (RCC42-17)	30.0	35.0	-
MPUM11992 (RCC60-59)	11.0	12.3	-
MPUM11993 (RCC73-23f)	10.0	11.0	-

*Schellwienella* sp.

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM11995 (RCC36-12)	25.0	27.0	-

?*Serratocrista* aff. *dalriensis*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM11997 (RCC10-40)	33.5	52.0	-

*Schizophoria* (*S.*) *resupinata*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM11999 (RCC1B-26)	45.0	70.0	-
MPUM12000 (RCC1B-3)	-	37.0	-
MPUM12001 (RCC108-1a) dv	53.0	56.6	-
MPUM12002 (RCC1B-20a) dv	15.0	20.6	-
MPUM12003 (RCC1B-4) dv	43.0	>38.0	-
MPUM12004 (RCC1B-25) dv	40.0	40.0	-
MPUM12005 (RCC36-1a) dv	30.0	35.0	-

*Schizophoria* (*S.*) cf. *connivens*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12009 (RCC60-48)	16.0	24.0	12.0

MPUM12010 (RCC1B-7) 13.0 17.5 -

*Pleuropugnoides pleurodon*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12011 (RCC49-22)	12.0	18.0	9.7
MPUM12012 (RCC73-9)	14.0	20.0	11.4
MPUM12013 (RCK15-4) juv.	5.5	6.0	2.0
MPUM12014 (RCK15-15)	>11.0	16.0	10.8
MPUM12015 (RCK15-19)	8.6	10.5	6.1
MPUM12016 (RCK15-29)	13.0	17.0	7.5
MPUM12017 (RCK15B-3) juv.	5.7	7.5	0.2
MPUM12018 (RCC49-17)	13.0	16.4	-
MPUM12018 (RCC49-18)	9.0	12.0	5.7
MPUM12018 (RCC49-44)	12.5	16.3	9.5
MPUM12018 (RCC300-9)	>9.0	11.7	5.4
MPUM12018 (RCK15-46a) juv.	6.1	11.0	4.4

*Propriopugnus pugnus*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12021 (RCC2-55)	16.0	15.5	-
MPUM12022 (RCC3-7) juv.	4.9	5.6	2.7
MPUM12023 (RCC60-44)	5.3	6.7	-
MPUM12024 (RCC73-22b)	5.5	5.4	3.3
MPUM12025 (RCC1B-40a)	5.5	4.0	3.5
MPUM12025 (RCC10-1) juv.	4.6	4.3	2.4
MPUM12025 (RCC32-20) juv.	4.6	4.6	2.4
MPUM12025 (RCC42-25a) juv.	4.9	5.3	2.8
MPUM12025 (RCC42-39)	-	8.4	-
MPUM12025 (RCC60-8b) juv.	3.8	4.0	1.3
MPUM12025 (RCC65G-15c) juv.	4.8	4.9	2.5
MPUM12026 (RCC60-4d) dv	14.2	18.6	-

MPUM12027 (RCC32-28c) juv. 5.2 5.6 -

*Crurithyris urei*

Specimen Length (mm) Width (mm) Thickness (mm)

MPUM12030 (RCC42-25b) 4.5 5.0 -

Martiniinae gen. et sp. indet.

Specimen Length (mm) Width (mm) Thickness (mm)

MPUM12065 (RCC2-58a) 18.0 18.0 -

MPUM12066 (WI1-32) 18.0 21.5 -

*Angiospirifer bisulcatus*

Specimen Length (mm) Width (mm) Thickness (mm)

MPUM12031 (WI1-10) 18.0 23.0 -

MPUM12032 (WI1-12a) 24.0 33.5 -

MPUM12033 (WI1-30) 17.5 23.7 -

MPUM12035 (WI1-11) 16.0 >19.0 -

MPUM12036 (WI1-36) 19.0 23.0 -

MPUM12039 (WI1-39) 9.0 12.5 -

?*Fusella* sp.

Specimen Length (mm) Width (mm) Thickness (mm)

MPUM12037 (RCC128-5) 10.1 >17.0 -

*Latibrachythyris* cf. *crassa*

Specimen Length (mm) Width (mm) Thickness (mm)

MPUM12038 (RCC1-21) 46.7 >50.0 -

MPUM12039 (RCC1-34a) - 40.0 -

MPUM12040 (RCC54-10a) 22.6 35.0 -

MPUM12041 (RCC54-17a) 42.0 55.0 -

*Latibrachythyris rotundata*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12043 (RCK15-1a)	10.6	9.2	-
MPUM12044 (RCK15-5)	5.2	4.6	-
MPUM12045 (RCK15-40)	11.6	13.5	-
MPUM12047 (RCC65G-12) dv	14.4	19.0	-
MPUM12046 (RCC129-1)	8.0	10.0	-

Brachythyrididae gen. et sp. indet.

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12049 (RCC11-8)	24.9	25.0	-
MPUM12052 (RCC42-5a)	22.0	26.0	-

*Reticularia cf. mesoloba*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12053 (RCK15-43)	>7.5	7.5	-

*Georgethyris lobata*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12086 (WI1-12)	15.5	18.7	-

*Phricodothyris paricosta*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12054 (RCC40-10a)	15.0	15.0	-
MPUM12055 (RCK15-34b)	11.3	9.1	-
MPUM12056 (RCC54-6)	9.3	10.0	-
MPUM12057 (RCK15-9) dv	13.0	15.0	-
MPUM12058 (RCK15-34a) dv	11.4	13.5	-
MPUM12059 (RCC2-6a) dv	9.0	10.6	-

*Phricodothyris cf. periculosa*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12060 (RCC73-30a)	11.5	10.0	6.5
MPUM12061 (RCK15-3)	>7.5	9.1	5.7
MPUM12062 (RCC60-10)	>11.0	18.6	8.0
MPUM12062 (RCC60-56)	>9.0	10.3	6.0
MPUM12063 (WI1-8)	12.0	13.0	7.0
MPUM12063 (WI1-18)	17.0	>16.0	11.0
MPUM12064 (RCC2-37)	9.5	11.0	-
MPUM12067 (RCC1-53a)	11.5	12.0	-
MPUM12067 (RCC54-14)	6.4	7.0	-

*Phricodothyris* sp.

Specimen	Length(mm)	Width(mm)	Thickness(mm)
MPUM12069 (RCC54-17b)	5.7	6.7	3.4
MPUM12069 (RCC128-4c)	4.0	4.4	2.6
MPUM12070 (RCC3-1)	15.0	17.0	-
MPUM12071 (RCC60-4a)	13.6	20.0	3.3
MPUM12072 (RCC1-49)	15.0	16.5	-
MPUM12072 (RCC49-35)	12.0	11.5	-
MPUM12072 (RCK15-70)	6.2	5.7	-

*Nebenothyris* sp.

Specimen	Length(mm)	Width(mm)	Thickness (mm)
MPUM12073 (WI1-26a)	18.0	23.0	-

Spiriferida gen. et sp. indet.

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12001 (RCC2-15)	7.0	9.2	-
MPUM12001 (RCC8-10)	6.8	7.4	-
MPUM12001 (RCC32-22)	6.0	6.0	-
MPUM12001 (RCC32-28d)	5.8	6.5	-



MPUM12001 (RCC128-23)	15.6	12.0	-
MPUM12001 (RCK15-64)	3.0	3.0	1.7

*?Punctospirifer* sp.

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12074 (RCC73-23c)	17.0	26.0	-

*Harttella oakleyi*

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12075 (RCC10-15b)	8.7	8.0	6.3
MPUM12076 (RCC41-9)	10.5	9.5	6.9
MPUM12077 (RCC41-22)	7.8	7.6	5.0
MPUM12078 (RCC49-9)	9.7	9.3	6.4
MPUM12079 (RCC49-12)	7.0	6.6	3.5
MPUM12080 (RCC60-19b)	9.0	9.0	5.4
MPUM12081 (RCC65G-2)	9.5	8.5	5.5
MPUM12082 (RCC65G-8a)	9.5	7.8	4.5
MPUM12083 (RCC65G-11)		8.3	6.2 4.8
MPUM12084 (RCC65G-14)	11.4	8.7	6.0
MPUM12085 (RCK15-14)	12.0	9.7	6.3
MPUM12088 (RCC9-1)	8.7	7.6	4.6
MPUM12088 (RCC10-7a)	6.7	5.9	3.9
MPUM12088 (RCC10-15c)	-	8.0	7.9
MPUM12088 (RCC10-33)	>8.0	7.7	5.1
MPUM12088 (RCC10-37)	7.3	6.4	4.0
MPUM12088 (RCC11-9b)	>9.3	8.0	7.5
MPUM12088 (RCC12-20)	1.2	9.9	7.3
MPUM12088 (RCK15A-1)	10.1	8.2	7.1
MPUM12088 (RCK15B-2)	11.4	-	9.8
MPUM12088 (RCC32-5b)	8.4	7.9	4.4
MPUM12088 (RCC32-28d)	>7.8	6.1	5.5

MPUM12088 (RCC41-19b)	8.3	7.6	4.5	
MPUM12088 (RCC41-18c)	7.1	7.8	5.1	
MPUM12088 (RCC41-20b)	9.5	8.0	6.7	
MPUM12088 (RCC42-2)	9.6	7.8	-	
MPUM12088 (RCC42-24)	9.2	8.0	-	
MPUM12088 (RCC42-9)	8.8	8.8	-	
MPUM12088 (RCC45-4a)	9.3	8.3	-	
MPUM12088 (RCC45-5)	9.3	8.2	-	
MPUM12088 (RCC48-31)	8.2	6.7	4.8	
MPUM12088 (RCC49-20)	8.1	7.6	5.1	
MPUM12088 (RCC60-43)	11.0	9.8	7.0	
MPUM12088 (RCC65G-5)	>6.5	5.5	3.7	
MPUM12088 (RCC65G-13)		9.4	8.7	5.5
MPUM12088 (RCC65G-10)		7.3	7.0	4.7
MPUM12088 (RCC65G-1)	6.4	7.8	2.9	
MPUM12088 (RCC65G-21)		8.3	7.6	4.7
MPUM12088 (RCC65G-22)		7.7	5.3	-
MPUM12088 (RCC67-1)	-	7.9	5.9	
MPUM12088 (RCC67-3)	8.5	8.0	5.5	
MPUM12088 (RCC73-12)	9.3	7.9	5.0	
MPUM12088 (RCC73-23e)	-	5.5	5.7	
MPUM12088 (RCC73-29b)	13.1	11.2	-	
MPUM12088 (RCC85-1c)	7.9	7.0	5.2	
MPUM12088 (RCC110-3f)	8.2	-	5.6	
MPUM12088 (RCC123-3)	-	6.5	5.4	
MPUM12088 (RCC128-8)	>9.4	8.2	5.8	
MPUM12088 (RCC128-22)	>8.0	7.7	-	
MPUM12088 (RCK15-6)	>10.0	8.7	6.3	
MPUM12088 (RCK15-27)	7.8	6.6	4.4	
MPUM12088 (RCK15-39a)	>6.2	4.9	3.8	
MPUM12088 (RCK17-1)	10.0	>6.6	6.1	

MPUM12089 (RCC10-38a)	10.8	8.5	-
MPUM12089 (RCC41-20c)	-	7.7	-
MPUM12089 (RCC42-27a)	-	9.8	-

*Beecheria* sp.

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUMM12092 (RCC49-31)	19.8	15.0	9.7
MPUM12093 (RCK16-2)	14.5	12.5	-

?*Balanoconcha* sp.

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12094 (RCC10-15a)	7.4	5.5	3.5
MPUM12095 (RCC300-1)	>10	9.0	-
MPUM12096 (RCK15-18)	12.7	10.0	6.2
MPUM12097 (RCK15-26)	7.6	6.5	3.4
MPUM12098 (RCC10-20)	2.8	2.6	3.2
MPUM12098 (RCC39-2)	3.5	3.1	1.9
MPUM12098 (RCC43-3)	3.8	3.6	1.5
MPUM12098 (RCC43-8b)	4.1	3.3	1.6
MPUM12098 (RCC60-50b)	>3.6	3.1	1.8
MPUM12098 (RCC65G-3)	3.7	3.0	1.8
MPUM12098 (RCC66-2)	>5.0	4.8	2.6
MPUM12098 (RCC67-2)	5.0	4.8	2.7
MPUM12099 (RCC10-10)	9.5	-	-
MPUM12099 (RCC10-28)	9.5	-	-

Terebratulida gen. et sp. indet.

Specimen	Length (mm)	Width (mm)	Thickness (mm)
MPUM12001 (RCC10-26)	5.9	-	-
MPUM12001 (RCC42-6b)	-	3.3	-
MPUM12001 (RCC42-15)	>8.0	7.5	-



	0	2	0	2	0	0	0	0	0	0	0	1	0
	3	1	5	0	0	1	0	19	0	0	0	0	
<i>Breileenia radiata</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	8	0	0	0	1	0	0	0	0	0	0	0
	2	1	0	0	0	0	1	0	0	0	0	1	0
	0	0	0	0	0	0	0	14	0	0	0	0	
<i>Geniculifera keyserlingiana</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	1	0	0	0	0	0	0	1	0	0	0	0
<i>Carringtonia cf. carringtoniana</i>	1	0	1	0	0	0	0	0	0	0	0	0	2
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0												
<i>Limbifera sp.</i>	0	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0		
<i>Productus cf. productus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	1	0	0	0	0
<i>Productus sp.</i>	1	0	0	0	0	1	0	0	0	2	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0		
<i>Eomarginifera cf. laqueata</i>	0	0	0	0	1	1	0	0	0	0	2	0	
	0	0	0	0	1	0	1	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	2	0	0	0	0
<i>Antiquatonia hindi</i>	0	0	4	3	0	3	1	0	11	0	0	2	
	1	0	2	1	1	4	0	0	0	0	1	0	
	2	0	0	0	0	1	0	1	1	0	0	0	0
	3	0	2	0	0	0	0	22	0	1	0	1	
<i>Antiquatonia aff. hindi</i>	0	0	1	0	0	0	0	1	0	2	0	0	
	0	0	2	0	0	3	2	0	0	0	1	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	8	0	0	0	0
<i>Antiquatonia insclupta</i>	6	0	5	6	0	3	0	0	0	20	1		
	1	2	1	0	2	0	1	0	0	0	0	0	0





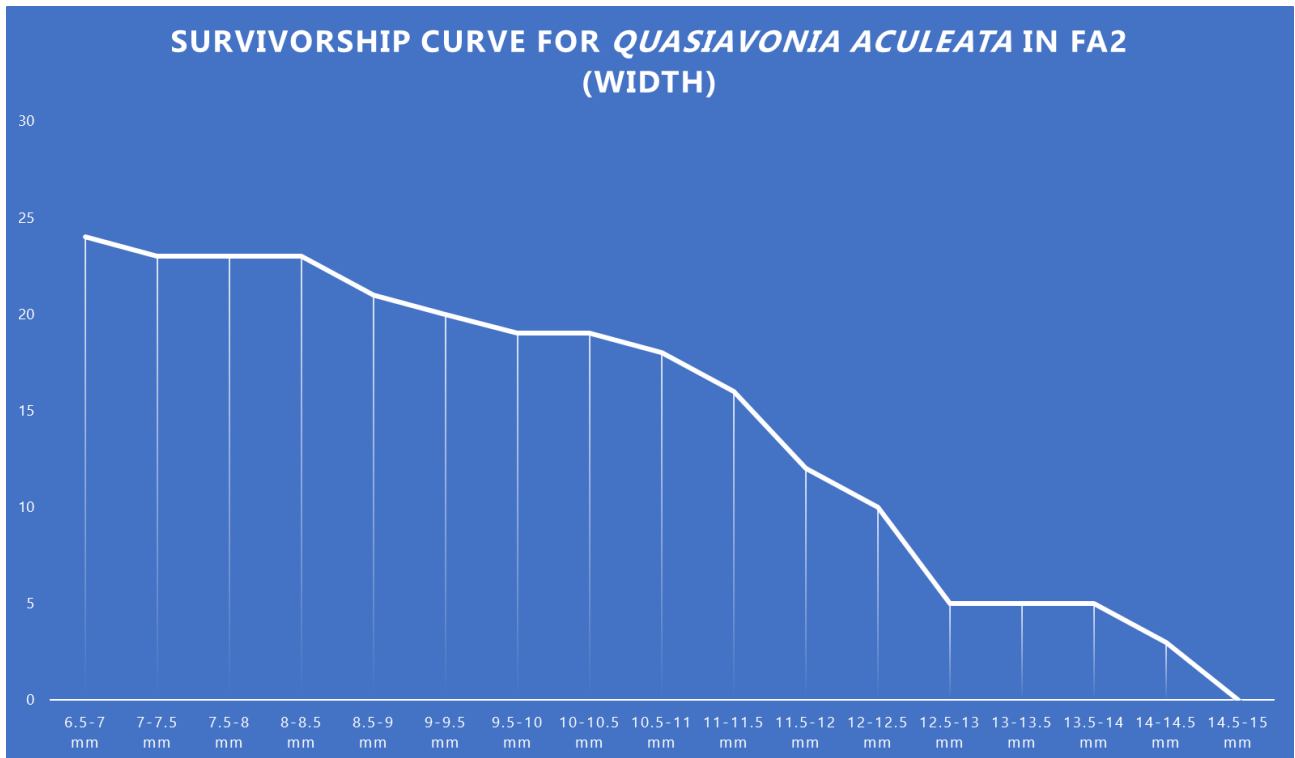




	0	0	0	1	0	0	0	0	0	0	0	0	0
	0	0	0	0	1	0	3	0	0	0	0		
? <i>Balanoconcha</i> sp.	0	0	0	0	0	0	0	1	0	0	1	4	0
	0	0	0	0	0	0	0	0	0	0	4	0	0
	0	3	1	0	0	0	0	2	0	1	1	0	0
	0	0	2	0	1	0	0	19	0	0	0	0	
Terebratulida gen. et sp. indet.				0	0	0	0	0	0	2	0	0	2
	1	0	0	1	0	0	0	0	0	0	0	0	0
	0	0	2	0	0	0	0	0	0	5	0	0	0
	0	0	0	0	0	0	0	0	0	9	0	1	0
	1												
Specimens (total):	32	1	31	17	13	37	8	1	140	22	8		
	6	17	3	19	6	25	2	1	2	1	6	5	18
	18	9	5	12	21	1	1	23	4	1	3	5	1
	23	7	44	1	4	2	3	329	2	17	2	21	
% Seminafaunals (specimens)	64.52	0	83.33	88.24	53.85	64.86	87.5	0	71.01				
	22.73	62.5	50	88.24	66.67	68.42	100	72	50	100	0	0	
	33.33	80	33.33	44.44	55.56	20	50	33.33	100	100	17.39	50	0
	0	100	100	56.52	57.14	40.91	0	25	50	33.33	48.63	0	
	47.06	100	47.62										
% Pedicle-attached (specimens)	25.81	0	16.67	11.76	30.77	29.73	12.5	100					
	23.19	63.64	25	33.33	11.76	33.33	26.32	0	28	50	0	0	100
	66.67	20	61.11	50	33.33	60	33.33	66.67	0	0	78.26	50	100
	100	0	0	34.78	42.86	52.27	100	75	50	66.67	45.29	50	
	11.76	0	14.29										
% Pedicle-attached/free living with morph. adaptations (specimens)	9.68	100	0	0									
	15.38	5.41	0	0	5.8	13.64	12.5	16.67	0	0	5.26	0	0
	0	0	100	0	0	0	5.56	5.56	11.11	20	16.67	0	0
	0	4.35	0	0	0	0	0	8.7	0	6.82	0	0	0
	0	6.08	50	44.18	0	38.1							
Biovolume (total except <i>Carringtonia</i> )	227846.07	-	329274.79	-	-								
	158490.04	-	-	1206310.86	134752.23	-	-	-	-	-	-	-	-
	-	88446.47	-	-	-	-	-	-	-	-	-	-	-
	-	11842.28	-	-	25155.21	-	-	-	-	-	-	-	-
	89108.23	-	192901.66	-	-	-	-	-	-	1238439.79	-	-	-
	237792.82		258571.62										
% biovolume seminafaunal productides	62.06	-	99.32	-	-	73.69	-	-					
	81.49	20.26	-	-	-	-	-	98.78	-	-	-	-	-
	-	-	-	-	-	-	-	36.73	-	-	86.73	-	-
	-	-	-	82.62	-	93.07	-	-	-	-	76.58	-	-
	26.29	-	31.72										
% biovolume pedicle-attached	1.91	-	0.68	-	-	2.46	-	-					1.2
	1.57	-	-	-	-	-	-	1.22	-	-	-	-	-

-	-	-	-	-	-	63.27	-	-	11.08	-	-	-
-	-	3.91	-	6.08	-	-	-	-	3.69	-	0.07	-
0.35												
% biovolume pedicle-att. with adaptations	36.03	-	0	-	-	23.85	-	-				
17.31	78.17	-	-	-	-	-	-	0	-	-	-	-
-	-	-	-	-	-	-	-	0	-	-	2.18	-
-	-	-	13.46	-	0.85	-	-	-	-	-	19.73	-
73.63	-	67.93										
Margalef diversity index	3.751	0	4.377	2.118	4.289	3.877	2.404	0	6.270			
2.912	1.924	2.232	2.471	0.91	4.075	1.674	3.107	1.443	0	1.443	0	
1.116	1.864	3.114	3.114	2.276	1.864	3.219	1.314	0	0	2.233	1.443	0
0.91	1.864	0	3.827	2.056	4.228	0	2.164	1.443	1.82	6.556	1.443	
3.177	1.443	3.613										
Shannon-Wiener diversity index	2.677	0	2.720	1.857	2.881	2.525	1.98	0				
3.030	2.161	1.81	1.894	1.897	0.803	2.795	1.492	2.421	0.943	0	0.943	0
1.034	1.632	2.139	2.447	1.955	1.632	2.472	1.467	0	0	1.816	1.29	0
0.803	1.632	0	2.703	1.836	2.769	0	1.761	0.943	1.432	3.026	0.943	
2.349	0.943	2.568										
Dominance	0.068	0.08	0.08	0.176	0.013	0.122	0.107	NAN	0.079	0.156	0.107	
0.067	0.22	0.333	0.041	0.2	0.087	0	NAN	0	NAN	0.4	0.4	0.1
0.072	0.111	0.1	0.045	0.243	NAN	NAN	0.225	0.167	NAN	0.333	0.1	
NAN	0.055	0.095	0.074	NAN	0	0	0	0.079	0	0.103	0	
0.076												
Evenness	1.039	1	0.951	0.915	1.487	0.833	1.207	1	0.65	0.868	1.222	
1.329	0.834	1.116	1.259	1.112	1.023	1.284	1	1.284	1	0.938	1.28	0.85
1.156	1.177	1.279	1.316	0.867	1	1	0.768	1.211	1	1.116	1.279	1
1.148	1.254	0.937	1	1.455	1.284	1.396	0.529	1.284	1.048	1.284	1.087	

## SOM 4



## SOM 5

